The handling of the blockade against Qatar from the perspective of Qatar Airways' resilience

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Qatar Airways is one of the most successful airlines of the last two decades. In 2017, when the coalition led by Saudi Arabia imposed an air, land, and sea blockade on Qatar, the socio-economic background of the sheikdom was destabilised. During this period, the flag carrier, which is vital for the country's international air connections, displayed extremely high resilience despite the severe restrictions on its opportunities.

This paper focuses on the substantial elements and the process of resilience regarding the entity. Further, the reliable and effective resources that provided a solid foundation for handling the crisis are examined and revealed. In addition to emphasising the learning process that constitutes an essential condition for adaptability, the structure of the external environment as an interface and the corresponding relationships are also analysed.

Based on Qatar Airways' response to the blockade, it can be concluded that despite the gravity, strength, and extent of the blockade, there has not been any irreversible damage to the functional operation and identity of the airline. The downturn triggered by the restricted airspace was manageable due to a resilience strategy based on an effective action plan, thus, the system was restored within a critical timeframe.

Some terms were introduced during the analysis to differentiate the crucial phases of the process in an event-specific way and provide a process-oriented approach towards resilient behaviour. To our knowledge, this is the first attempt to interpret an economic and political conflict related to air transport from the perspective of resilience.

Keywords:
Qatar Airways,
organic development,
blockade phase,
resilient development

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Relevance of the topic

The subject and content of this study merit special consideration. *First*, the Middle East region is perhaps the most complex and controversial place on the planet; its political and economic activities have a global effect on a daily basis (Tsiotas et al. 2020). *Second*, Qatar, which lies on the coast of the Persian Gulf, shapes the fluid system of relations of the Gulf Cooperation Council (GCC) countries with its unique way of thinking based mainly on the potential of its exceptional natural endowments. Today, the microstate is a key player not only in the region but also on the global geopolitical stage through its economic, political, and cultural/sport influence. During its short history, the country has become one of the richest countries of the world through its performance.[1] Qatar is successfully building itself up through the instrument of soft power by assuming a mediating role in regional conflicts, financing prestigious events, maintaining an influential media, and manoeuvring skilfully in international financial forums.[2]

The country is built on the hydrocarbon market, but is determined to take steps towards diversification; as a result, the aviation industry has been placed in a preferential position. This orientation of development was detected in due time and the effective implementation of the generous plans resulted in the inseparable fusion of the airline and its owner, the state.

The flag carrier of Qatar was one of the main targets of the blockade initiated by Saudi Arabia and the United Arab Emirates in 2017. This form of diplomatic offensive, which means totally isolating a sovereign country, is unprecedented in the history of aviation and international relations. Owing to the blockade of its airspace and waterways, Qatar lost the logistic component of its commerce, which generated almost 90 % of its GDP[3]. Thus, the initiators of the diplomatic offensive were right to hope that the microstate would capitulate within a short time. In contrast, the geopolitical actors of the region – with the targeted country at the forefront – rewrote this strategic script within a few weeks. By that time, the realignment of the balance of power in the region had become clear to the quartet led by Saudi Arabia and the United Arab Emirates, and it was defined by two factors: on the one hand, the political weight and economic support of the countries aiding against the blockading countries[4], and on the other hand a step backward by the main overseer, the USA.

[1] Its gross domestic product (GDP) per capita is twice that of the United States (USA), and thrice that of the United Kingdom (UK). GDP per capita, PPP (current international USD), Qatar (2018) USD 126,898.40, USA (2018) USD 62,794.60, UK (2018) USD 45,973.60 (Worldbank 2019).

[2] The Qatar Investment Authority (QIA) is the 8th largest sovereign wealth fund in the world with 300 billion USD in assets (2019) (Sovereign Wealth Fund Institute 2020).

[3] Trade 2016 (% of GDP): 89.55 (Worldbank 2017).

[4] On the one hand, two regional superpowers, Iran and Turkey, offered immediate support, and on 26 November 2017 a commercial and transport agreement was signed by the 3 countries. On the other hand, few countries joined the blockade, and Oman and Kuwait, both GCC members, distanced themselves from the initiative.

In addition to the sound financial background and effective foreign assistance, the determined action of the Qatari Emir against the invasion and his commitment to independence gained him political support that laid the foundation of a new national identity[5]. This was an especially important internal reinforcement for the Emir. Furthermore, the development of several sectors of the economy, including the 5-year development plan of Qatar Airways (which was activated and prioritised), proved to be crucial.[6]

It is noteworthy, in relation to the measures, that these reactions were fast, timely, and systematic and, furthermore, resources were successfully and widely mobilised on several fronts. It is important to recognise that Qatar Airways is owned by the State of Qatar, even if this connection does not necessarily imply actual financial support in each case.

The quality of Qatar Airways' responses to the blockade has to be assessed on multiple levels including the global escalation. First, the synergies for cooperation between the airline and the government must be highlighted but, more importantly, the international scale of the confrontation comprising the action and reaction of the opposing parties must also be underlined. Finally, the effect of the blockade on the position of Qatar Airways in the global aviation system is certainly worth analysing from a more distant perspective. This study investigates the issues regarding the resilient behaviour of these complex relationships.

The demand for an academic interpretation of the theory of resilience is not a recent phenomenon. Since C. Holling's findings, this theory has been increasingly applied for analysing an equilibrium after an external shock (Holling 1973). In the present case, an artificial system planned a mainly political and economic attack, and this triggered the interaction between the affected parties. This threatened construct shows several signs of life, which can be successfully compared with the operation of an organic unit. In these artificial socioeconomic systems, the self-organisation/spontaneous organisation is less prevalent (because the individual and the community create and operate these systems in close interaction with the environment), and instinctive and deliberate responses can be expected as necessary reactions. Analysing the aforementioned issues involves dealing with different

[5] Ahmed bin Majed Almaadheed, an artist from Doha, made his work 'Glorious Tamim' a week after the start of the blockade. It is a black and white picture in Arabic calligraphic style and has since then become a symbol everywhere in Qatar – on cars, T-shirts, walls, billboards, Twitter, Facebook, and Instagram – and it offers loyalty and total support for the government led by Sheikh Tamim bin Hamad Al Thani.

[6] Démarches for condemnation or relaxation of the blockade:
– replacement, substitution and extension of routes, new code-share agreements,
– streamlining and diversification of operations (expansion, investments),
– acceleration of innovation,
– strengthening soft power, brand-building (awards),
– development of Doha hub, global positioning of Doha,
– cooperation with the state, active participation in achieving the government's aims.

practices, provisions, discourses, processes, creative spaces, economics, politics, and subjectivities together (Raab et al. 2015).

It is important to emphasise that this study does not aim to further examine the theoretical and methodical consideration of resilience, but rather provide an approach to the resilience-based interpretation of the effects of the blockade on the airline.

Methodology

An approach based on resilience is 'apparently suitable for describing the operation of any kind of system and for remedying each theoretical and practical problem' (Székely 2015). However, studies in this context, which extend beyond general/methodological issues, are primarily focused on ecological, psychological, socio-cultural issues, the assessment of urban and security issues, and consequences of natural disasters (droughts, floods, tropical cyclones, tsunamis, etc.) (Folke et al. 2002, Baranyai–Lux 2014, Rose–Liao et al. 2005, Stein 2013, Wu−Wu 2013, Szokolszky−Komlósi 2015, Pirisi 2019).

In this case, the viability of an airline had to be proved based on the efficiency of its operation in the context of the economic consequences of a politically motivated attack.

Accordingly, the studies that applied theoretical and methodological approaches and general models provided professional guidance for analysing the external interfering forces and their consequences and opened up the possibility of further consideration and improvement.

In this approach, the analysis of air transport from a resilience perspective offers a novel opportunity for extending the usage of this reflective paradigm and considering the mechanism of the given crisis.

By limiting the airspace of Qatar Airways, the main parameters of its operation were altered (number of destinations, passenger traffic, tonnes of cargo, revenue, and so on). The economic power of the company prevailed through the operation of the system, therefore, the strength (or weakness) of resilience can be measured by identifying the activities of the resources by covering the operational data as broadly as possible, making it measurable and comparable.

Different dimensions (units, passengers, tonnes, USD, and so on) of significantly varying indexes had to be managed on two independent, but substantially coherent curves (compare and display), thus, it was essential to define common dimensions and points of reference. Values expressed as percentage were considered to be the appropriate common dimension. The change in the company's performance between 2012 and 2019 was analysed based on the *annual data* of the financial statements and *monthly data* for the period immediately after the beginning of the blockade (Tables A1 and A3 in Appendix). The data were compared and illustrated

with the probable values based on the previous results both in annual and monthly contexts.

The change in *annual* data for 2012–2016 was defined by calculating the chain index from the data for 2012–2016 (2013/2012, 2014/2013, 2015/2014, 2016/2015). The general formula of the chain index is represented below, wherein x_n= data for the current period, x_{n-1}= data for the prior period

$$\sum \frac{x_1}{x_0}; \sum \frac{x_2}{x_1}; \ldots \sum \frac{x_n}{x_{n-1}}; \ldots \sum \frac{x_k}{x_{k-1}}$$

The geometric mean of the quotients was considered to be the mean annual change, and this value was extrapolated to the annual data of the period following the blockade.

The geometric mean was calculated as follows: x_i=values to be averaged, n=number of values to be averaged. By multiplying the n values to be averaged, the nth root was obtained through the following general formula:

$$\bar{x}_g = \sqrt[n]{\prod_{i=1}^{n} x_i}$$

After the start of the blockade, the *monthly* data was compared to the data of the same month in the previous year. The probable value was expressed by the ratio (as a percentage) of the actual and expected performance (the multiplication of the value for the previous year and the geometrical mean of the first five months of the given year).

In addition to illustrating the change in data, we attempted to reconstruct the situation that would have emerged without the blockade by using the approach detailed above (Tables A2 and A4 in Appendix). By comparing the same months, the variances of the significant monthly values were considered. A formula was developed for the purpose of this calculation; however, it can be seen that Qatar Airways showed consistently higher values in the previous years.

The following indices were applied for the analysis: Qatar Airways: fleet, destination, passenger traffic, load factor, ASK, RPK, total turnover, cargo, and yield; Hamad International Airport: aircraft movement, passenger traffic, and revenue (Erdősi 2015, Planning and Statistics Authority 2020, Sabre Airline Solutions 2019, Qatar Airways Group 2015b, 2016b, 2017b, 2018b, 2019b).

This study aimed to reveal the real motives and circumstances behind the blockade, as an assessment carried out in full knowledge of the facts would help in determining the airlines' resilience capability. Although the political weight of the conflict obscured the information and hid most of the real facts from the public, the available public government documents contained information on the subjective positions of the opposing parties, thus these documents were not used.

The database was based on governmental and statistical publications, the work of universities and research institutes, annual reports of IATA, ICAO, and Air Transport Statistics, annual reports of Qatar Airways, available data of the Qatar Planning and Statistics Authority, Budapest Airport's database, as well as the interviews with Mr Akbar Al-Baker[7].

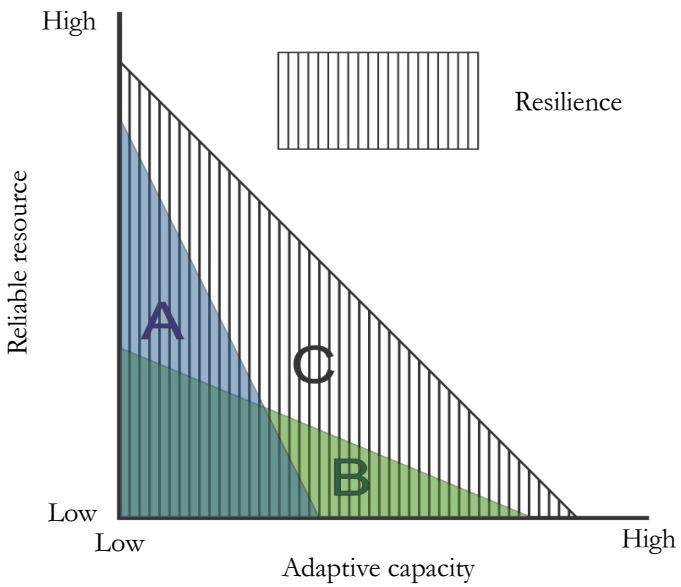
Special thanks are due to the staff of the German Aerospace Centre for providing us the data requested. Figures were created from the data of the above-mentioned sources, and then edited using Excel and the Corel Draw X7 programme.

Results

Longstaff et al. (2010) developed the theory of community resilience based on the interdisciplinary theoretical and politically oriented literature in relation to the connectivity of resource robustness and adaptive capacity. This theory demonstrates the features of resilient systems. The general statements of this study provide a useful framework and algorithm for the present study. It is easy to see that the most vulnerable systems are those that have a low level of resources and, particularly, when this is combined with a low adaptive capacity. In most of the cases either the former (A) or the latter (B) are fulfilled to some extent (Figure 1).

Figure 1

Relationship between reliable resources and adaptive capacity



Notes: Type A (blue): Existence of resources: high; adaptive capacity: low; Type B (green): Existence of resources: low; adaptive capacity: high; Type C: Existence of resources: very high; adaptive capacity: high.

[7] Group CEO of Qatar Airways.

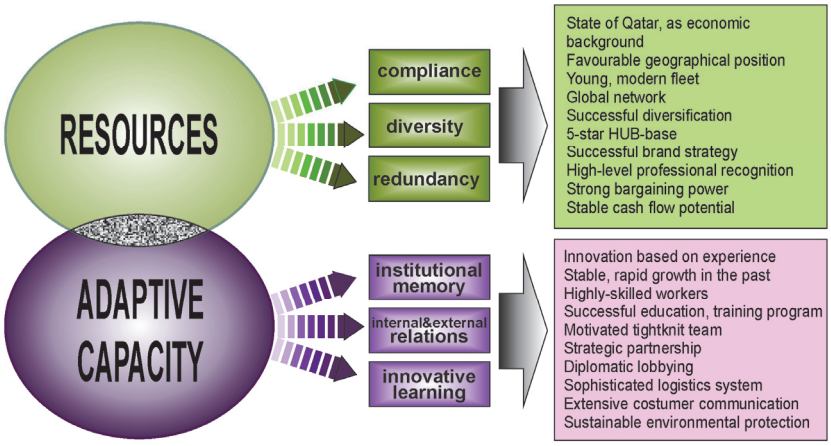
Source: The author based on Longstaff et al. 2010.

In these cases, compensation by the component with greater capacity towards the other component may intensify the capacity for resilience of the whole community.

Few systems have both conditions at a high (C) or extremely high level. The state of Qatar and Qatar Airways both possess an abundance of resources and the ability to use them intelligently, which was a sufficient guarantee of efficient task management following the announcement of the blockade. Although this model is not suitable for precision measurement, it gives a clear illustration of its structure and internal proportions. Filling the two parameters with content provides an important supplement to the model (Figure 2).

Figure 2

The structure and range of resources and adaptive capacity in relation to Qatar Airways as an economic unit



Source: The author based on Longstaff et al. 2010.

The existence of reliable and effective resources is of paramount importance for visualising the resilience of a system (community). Objects, conditions, characteristics, and energies are considered to be resources if they are important from the viewpoint of people and the community. The effectiveness of resources can be assessed based on their compliance (performance), diversity, and redundancy (Norris et al. 2008).

In the case of Qatar Airways, its resources can be considered to be robust as they have a broad range and reserves that provide a solid foundation for crisis management.

The other pillar of resilience is the quality of adaptation, which was built on the airline's performance during last two decades. This involved the assignment of goals, fleet development, network building, airport development, and the

construction of a global logistics system and selection of the management responsible for operations.

Institutional knowledge comprising the experience gained at the forefront of global aviation is supplemented with professional and scientific education and innovation of strategic importance (Thales Group 2019). This resulted, on the one hand, in double-digit growth in several indicators between 2007 and 2017 (Qatar Airways Group 2015a, 2016a, 2017a, 2018a, Qatar Airways Group 2015b, 2016b, 2017b, 2018b, 2019b), and on the other hand, it conditioned the intra-system and interpersonal relationships and resilience to withstand frequent external attacks.

The global nature of aviation requires international relationships and alliances as a part of high-level adaptability. In this respect, an important issue is the precise definition and spatial delineation of the given system and the external environment (threat) as, in practice, the confrontation of the two sides triggers the essence of resilience. With the initiation of the blockade, the complex environment around Qatar Airways (as a system) became a complex connectivity space that shaped a circular and outward expanding, yet decreasing cohesive force, which was transformed due to the crisis and broadened with political and geopolitical content (Figure 3).

In this space, the efficient crisis management of the targeted entity is defined by the existence and strength of the positive bilateral connections. This could include every political, professional, and civil cluster (country, organisation, alliance, group) that provided any kind of support (material, legal, moral etc.), or which at least, as a neutral observer, did not impose obstacles. On the other side stands the group of countries representing the Saudi viewpoint.[8]

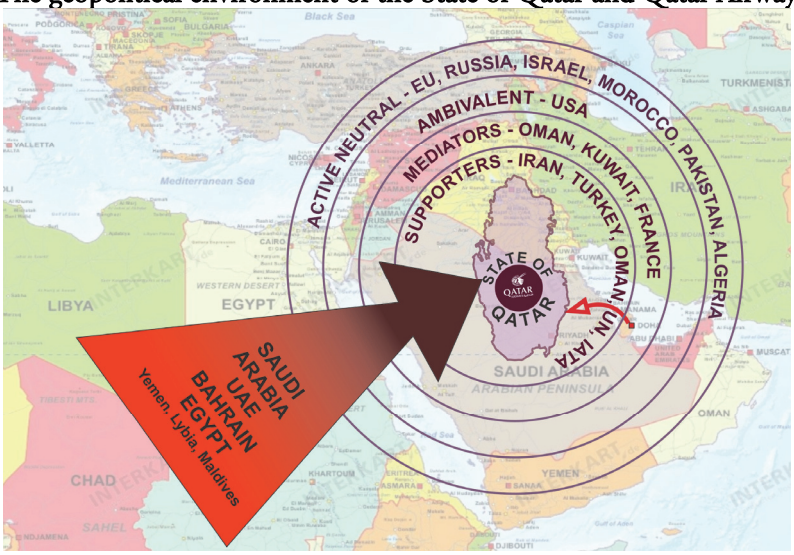
No community automatically has the capability of resilience, as it always becomes part of the system through a process of learning and activity. To this end, it is worth fitting the static approach described above into the process of change – highlighting education – by displaying the dynamics of the more important parameters and following the corresponding changes during the period in question. Drawing from research connected to resilience, we required an algorithm based on the research of resilience that was applicable to these criteria and accounted for the role of the state of Qatar as a dominant background[9] resource to describe the behaviour of resilience.

[8]In the centre of the construct is the airline (with its inner structure, operational parameters, etc.). It is in close connection with the state (natural conditions, social contradictions, lobbying force, etc.), and then with the countries providing direct, active support (food transport, permission to use their airspace, public stand, etc.). Subsequently, there are the partner airlines, alliances (Oneworld, code share partners), and international organisations (IATA, ICAO, UN), who condemned the blockade. Lastly, there is the group of neutrals (including the entities that were uncertain regarding the issue), who distanced themselves from the crisis as neutrals.

[9] The world's economic centre of gravity is shifting southwards, this trend is moving in the direction of the Middle East in the Asian-Pacific region, highlighting its economic weight. One of the most influential actors in this region is Qatar (Tóth–Nagy 2016).

Figure 3

The geopolitical environment of the State of Qatar and Qatar Airways



Conway et al. (2010) displayed the effects of climate change influencing agriculture (floods, drought, cyclones) and the respective countermeasures on a timescale. Their model starts with predictions, surveys, and prognosis, which should envisage the preventive measures, then it mentions the strengthening of tolerance, and finally focuses on recovery and rehabilitation after shock. The last step of the process is education, which, in this case, means conscious storage of experiences.

In their diagram, the differing resilience alternatives were associated with the state after stress and/or shock, one of which shows an indeterminate resilience. Raab et al. (2015) improved this model to analyse resilience against surveillance and human rights. Their chart has time (x axis) and a general dimension (y axis) labelled, which offers an opportunity to illustrate the spread and course of the factors describing the nature of resilience over time.

The Qatar crisis created conditions and special relationships, and revealed interrelations, which necessitated an amended evaluation framework in addition to the theoretical and methodological works.

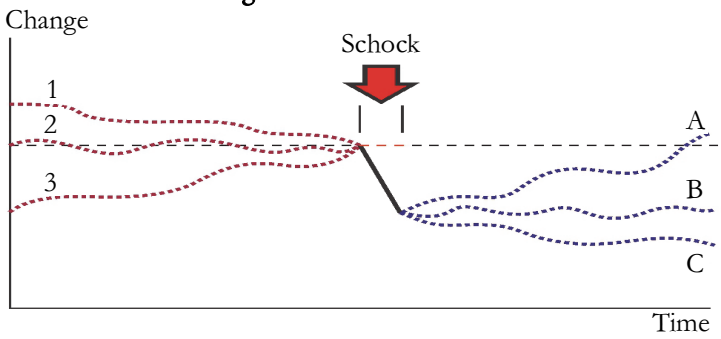
In view of this, it is worth highlighting the following:

– A specific timeframe related to the company's financial year between 2012 and 2019 was selected. In the year of the blockade, after the beginning of the crisis, the change was tracked on a monthly basis.
– It felt necessary to apply and fit a wider, more dynamic definition for resilience into the process than was previously used. Although the different fields of science approach it from a different perspective, the generally accepted definitions (Stein 2013) of resilience emphasise the flexible capacity for resistance and renewal after shock and point out the source of threat and

the subsequent series of steps. Most of these approaches do not sufficiently emphasise the formation of the conditions of resilience, the lack of which may even lead to a non-resilient response (see Figure 4 B, C).

Figure 4

The general model of resilience



Notes: 1, 2, and 3 are the alternative development paths before the shock, A, B, and C represent possible responses to the shock. The grey dashed line is the performance value at the moment of the shock.

Source: The author, based on previous models.

Thus, it is essential to demonstrate the structure of the whole process comprising the components of resilience capacity, conditions of their formation, and nature of external impact by perceiving its strength, withstanding its conditions, and tracking the rebound when defining and analysing the issues of resilience. Following the chronology makes it possible to review the improvement potential and formation of the development path.

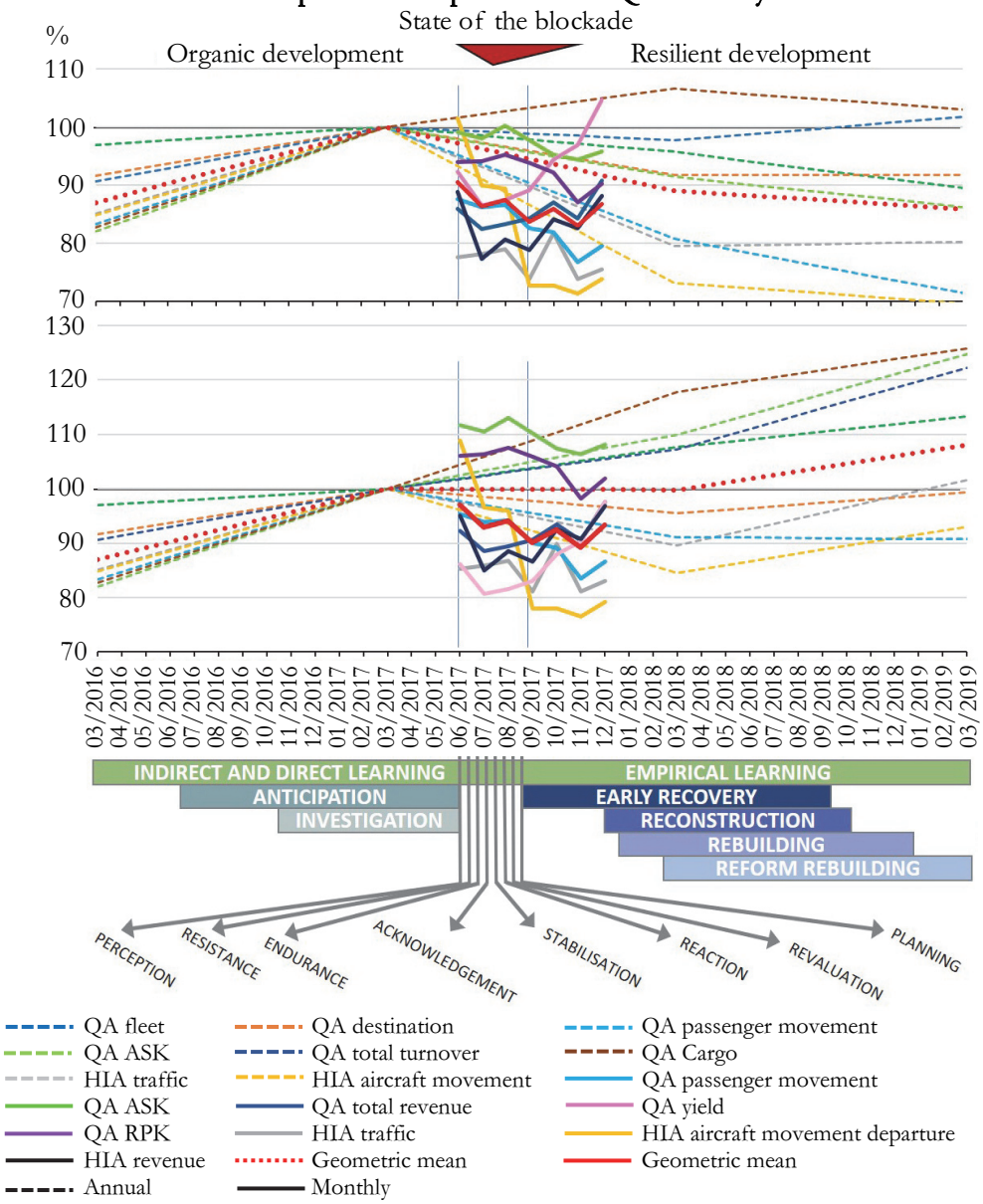
– To describe the interdependent steps and main units of development, terms that present the process specific to the given crisis had to be established. In this regard, the following three stages seem to be justified: organic development[10], blockade stage, and resilient development (Figure 5).

In the stage of *organic development,* the economic unit applying state-of-the-art technology is a self-building system (with the pattern of a living organism), which has vital signs alternating between successes and failures. This stage is defined by innovation-based research and development education relating to the domination of system-specific events, and this results (in the case of positive performance), on the one hand, in a competitive entity that is technically and organisationally prepared to adhere to global demands and, on the other hand, it offers an opportunity to acquire knowledge for the necessary adaptation for the participants (in this case in the aviation market).

[10] Following the definition of 'organic development' mentioned by Sir Tim Clark (president of Emirates) (Gulf Business 2019).

Figure 5

The resilience process based on the survey of the main performance parameters of Qatar Airways



Notes: QA: Qatar Airways; HIA: Doha Hamad International. The trend of decrease in performance due to the blockade (expressed as percentage of the probable value) Below: Performance parameters compared to the results prior to the blockade (in percentage).

In this phase of development, education is not necessarily motivated by preparation for an external attack, but strengthening of resources, and development and deepening of the related proficiencies and skills are crucial in the building up and development of resilience. In cases where the likelihood of the crisis is high, or it is planned in advance or predictable, the importance of direct training or specific preparations (guided learning) increases. In this case, anticipation, the validation of available test results, or the intention to prevent the crisis is the motivation for learning. During airline operations, larger or smaller stresses are frequent (e.g., consequences of volcanic eruptions, limitation of airport usage, diplomatic disputes, legal attacks, etc.), and the impact of these stresses remains within the critical threshold, and so, the particular entity's power curve (mostly undulated) converges to the starting point in a short timeframe. These power curves can be rising (as in the case of Qatar Airways), stagnant, or declining (Figure 5).

The last one and a half decades of Qatar Airways' performance (independent of the blockade) can be regarded as a consistent system development, which created a strong basis for secure resources and adaptability. Although the crisis of 2014 could not be ignored, it drew attention to the importance of developing contingency plans (Hassan 2015).

The *blockade stage* comprises the confrontation with the content of accusations and its possible consequences. The announcement of the blockade and awareness by the affected party occurred very quickly. This stage began with the perception of the blockade and lasted until the earliest planned act.

Regarding treating the shock, Qatar Airways took comprehensive steps that made it possible to perceive/understand the weight of the blockade in time, bear the initial effect, estimate the prospective short-, mid-, and long-term consequences, react to the issues within the system, acknowledge the limited possibilities, express the point of view of strategic importance, cautiously plan further decisive actions, and resolve urgent issues.

As a crucial factor for the mobilisation of the country and a state enterprise, Qatar Airways performs strategic tasks due to its position, and so, several aspects of the standpoint expressed by the state represent the obligations and guidelines that apply to the flag carrier. The attacks against the political sovereignty of the state had to be treated accordingly, by resisting the unwanted economic, geopolitical outrages and re-evaluating the former international relations (direction, gravity, quality).

Resilient development. To assess the resilient behaviour of a system, three issues merit examination: how large is the shock that can still be absorbed by the system; to what extent can the system organise itself; and how can it create the adaptability and educational skills required (Folke et al. 2002).

For greater clarity, the period was divided into intervals, but it is important to stress the nature of the process of the consecutive stages and the close interrelationships and connection of the terms describing the events, which in some

cases overlap or run parallelly. In every case, there are tasks that require immediate intervention and other tasks that can be realised only after proactive planning. The former is the period of early recovery (Lallemant 2013, UNDP 2015). In this case, the first provisions were to maintain operability and eliminate further vulnerability. For the state, this meant political and national security (in particular, food safety) and economic measures, while for the airline, besides the tasks given by government, it meant the organisation of access to the international air space (Bahrein FIR), and the first steps taken to substitute the 20% decrease in capacity (Kingsley-Jones 2018).

In the latter period, after regeneration, resilience-based development, and internalising the experiences of the blockade, plans were formulated and decisions were made, which were built on the mid- and long-term conception of crisis management. The narrowest interpretation of reconstruction or recovery means that the system returns to its original (or close to original) state in a relatively short time. Initially, there was little chance of this in light of the power and determination of the quartet led by Saudi Arabia, but Group CEO Akbar Al Baker clarified the future mission of the airline, its strategic role, and international support: 'Qatar intends to become a global powerhouse in aviation', 'Our commitment to a sustainable aviation industry is more resolute than ever', 'Qatar Airways has a very robust plan B'[11]. Accordingly, in the next period, the effects and consequences of the blockade were used as a catalyst for accelerating its already existing 5-year plan.

These provisions can be classified as follows:

- strengthening of functionality (airspace usage, destinations, rationalisation),
- increase of innovation, strengthening soft power, broadening of brand-building,
- global positioning of the Doha Hub,
- diversification of the operation (continuance of investments),
- defining the relationship between the state and airline.

When resilience confronts the blockade as the source of stress, it has been shown that after the successful early response, the claim for restitution of the pre-blockade situation was not a focus anymore, but instead a reconstruction strategy that was adjusted to the new conditions, occasionally displayed compromise, and opened out to a much larger decision space was implemented. By enforcing the early development, the reliability of resources grew and capacity for adaptation became more flexible, which, in turn, resulted in the strengthening of resilience.

[11] Qatar Airways Demonstrates Commitment, Resilience, and Progress as it Publishes its Sustainability Report (Aljazeera 2017, Counting the Costs 2018, Qatar Airways Group 2018, Kingsley-Jones 2018).

Conclusions

The graph created based on performance parameters illustrates the impact of the Qatar diplomatic crisis on Qatar Airlines and the effectiveness of the shock treatment. The annual curve (dashed line) represents the development trend, and the monthly curve (continuous line) represents the strength and dynamics of resilience. To explain the systematic process, we tried to use most of the accessible data. It can be observed that most of the values (HIA aircraft movement, HIA total revenue, QA passenger movement, QA total revenue, QA yield) show a significant decrease following the blockade of June 2017, and by the end of the year they re-enter a growth phase. It is noticeable that the worst blow was the cancellation of 18 destinations (5 flights per day) from the capital city's airport, the hub of Qatar Airways (HIA), and the loss of passengers, cargo, and revenue as a consequence; although Qatar Airways was able to continuously increase its fleet size due to the planned and accelerated development. It is also clear by comparing the actual data with the projected data that no significant negative difference can be observed, although significant differences can be seen in the parameters, which suggests strong resilience regarding the gravity of the event. The decrease in the traffic of Doha airport, which is higher than that of Qatar Airways, is noteworthy. This is partly independent from Qatar Airways and reflects the absence of the boycotting countries and the distrust of other airlines in the short term.

Regarding the annual results, cargo best survived the effects of the blockade, which indicates the growing demand and successful engagement in international air transport beyond the necessary supply of national functions.

Concerning the two-and-a-half-year results, it may be stated that during the critical period – and despite the blockade – service continuity was ensured, external and internal trust was maintained, the system was operational, and a useful strategy was developed in accordance with the state's responses to the blockade.

Qatar Airways was capable of achieving this because in the organic development phase it gained the skills suitable for handling a shock of this magnitude.

In light of the diplomatic crisis, it is important to highlight the following:

- Diplomatic relations coupled with marketable resources may override the size limits of a country (entity).
- Our globalised world is increasingly interconnected, but at the same time, information is flowing through increasingly invisible channels. The frequency of surprises on the geopolitical stage is high, and predictability is low. It is almost impossible to predict or prepare for unexpected stress and shock situations, and so, the risk of these situations can only be mitigated through widespread resilience strategies.
- The effectiveness – as an optional supporting environmental condition – of the organisations influencing/directing global aviation is limited.
- The blockade of Qatar goes well beyond the air transport crisis; it provides a warning about the strained situation in the Middle East – as well as the wider Arab world – that is influenced by the superpowers.

Appendix

Table A1

The change of Qatar Airways' analysed performance parameters based on 2012–2019 data

Nr.	Parameter	Dimension	03/2012	03/2013	03/2014	03/2015
1	Qatar Airways fleet		109	126	136	150
		2017=100%	56%	64%	69%	77%
2	Qatar Airways destination		128	140	151	165
		2017=100%	82%	90%	97%	106%
3	Hamad International Airport (HIA) traffic		21,160,000	23,200,000	26,300,000	30,900,000
		2017=100%	55%	61%	69%	81%
4	Hamad International Airport (HIA) aircraft movement		121,638	135,213	209,705	212,252
		2017=100%	49%	54%	84%	85%
5	Qatar Airways pass. movement		17,600,000	19,200,000	20,800,000	22,400,000
		2017=100%	55%	60%	65%	70%
6	Qatar Airways ASK		73,608	110,586	119,400	126,767
		2017=100%	40%	60%	64%	68%
7	Qatar Airways total revenue	USD	24,854,000,000	27,787,000,000	30,641,000,000	34,187,000,000
		2017=100%	63%	71%	78%	87%
8	Qatar Airways CARGO	tons	699,932	826,677	980,114	1,520,000
		2017=100%	61%	72%	85%	132%
9	Geometric mean	2017=100%	56%	66%	76%	86%
Nr.	Parameter	Dimension	03/2016	03/2017	03/2018	03/2019
1	Qatar Airways fleet		190	196	211	222
		2017=100%	97%	100%	108%	113%
2	Qatar Airways destination		143	156	149	155
		2017=100%	92%	100%	96%	99%
3	Hamad International Airport (HIA) traffic		32,500,000	38,200,000	34,200,000	38,800,000
		2017=100%	85%	100%	90%	102%
4	Hamad International Airport (HIA) aircraft movement		212,252	250,419	211,658	232,917
		2017=100%	85%	100%	85%	93%
5	Qatar Airways pass. movement		26,654,000	32,007,000	29,162,000	29,031,537
		2017=100%	83%	100%	91%	91%
6	Qatar Airways ASK		151,980	185,208	203,650	231,094
		2017=100%	82%	100%	110%	125%
7	Qatar Airways total revenue	USD	35,681,000,000	39,387,000,000	42,235,000,000	48,158,000,000
		2017=100%	91%	100%	107%	122%
8	Qatar Airways CARGO	tons	954,191	1,153,825	1,359,203	1,452,000
		2017=100%	83%	100%	118%	126%
9	Geometric mean	2017=100%	87%	100%	100%	108%

Table A2

The change of Qatar Airways' analysed performance parameters based on 2012–2019 data and the correlation of the data of 2018–2019 and the values of 2018–2019 projected from the data of 2012–2016

Nr.	Parameter	Dimension	03/2012	03/2013	03/2014	03/2015
1	Qatar Airways fleet		109	126	136	150
		2017=100%	56%	64%	69%	77%
2	Qatar Airways destination		128	140	151	165
		2017=100%	82%	90%	97%	106%
3	Hamad International Airport (HIA) traffic		21,160,000	23,200,000	26,300,000	30,900,000
		2017=100%	55%	61%	69%	81%
4	Hamad International Airport (HIA) aircraft movement		121,638	135,213	209,705	212,252
		2017=100%	49%	54%	84%	85%
5	Qatar Airways pass. movement		17,600,000	19,200,000	20,800,000	22,400,000
		2017=100%	55%	60%	65%	70%
6	Qatar Airways ASK		73,608	110,586	119,400	126,767
		2017=100%	40%	60%	64%	68%
7	Qatar Airways total revenue		24,854,000,000	27,787,000,000	30,641,000,000	34,187,000,000
		2017=100%	63%	71%	78%	87%
8	Qatar Airways CARGO		699,932	826,677	980,114	1,520,000
		2017=100%	61%	72%	85%	132%
9	Geometric mean	2017=100%	56%	66%	76%	86%
Nr.	Parameter	Dimension	03/2016	03/2017	03/2018	03/2019
1	Qatar Airways fleet		190	196	220	248
		2017=100%	97%	100%	96%	90%
2	Qatar Airways destination		143	156	162	169
		2017=100%	92%	100%	92%	92%
3	Hamad International Airport (HIA) traffic		32,500,000	38,200,000	42,990,540	48,381,847
		2017=100%	85%	100%	80%	80%
4	Hamad International Airport (HIA) aircraft movement		212,252	250,419	289,326	334,277
		2017=100%	85%	100%	73%	70%
5	Qatar Airways pass. movement		26,654,000	32,007,000	36,073,762	40,657,240
		2017=100%	83%	100%	81%	71%
6	Qatar Airways ASK		151,980	185,208	222,744	267,888
		2017=100%	82%	100%	91%	86%
7	Qatar Airways total revenue		35,681,000,000	39,387,000,000	43,186,123,746	47,351,696,859
		2017=100%	91%	100%	98%	102%
8	Qatar Airways CARGO		954,191	1,153,825	1,275,136	1,409,203
		2017=100%	83%	100%	107%	103%
9	Geometric mean	2017=100%	87%	100%	89%	86%

Table A3

The analysed performance parameters of Qatar Airways based on the respective month of 2016, between January–December 2017

Nr.	Parameter	Year, dimension	January	February	March	April
1	Hamad International Airport (HIA) traffic	2016	3,100,328	2,732,274	3,064,327	3,016,347
		2017	3,537,462	3,032,308	3,219,919	3437,312
		2017/2016 %	114%	111%	105%	114%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	8,994	8,441	9,210	9,059
		2017	10,004	8,953	9,873	9,612
		2017/2016 %	111%	106%	107%	106%
3	Qatar Airways pass. Movement	2016	2,626,454	2,310,363	2,645,221	2564,404
		2017	2,949,211	2,590,282	2,762,273	2864,048
		2017/2016 %	112%	112%	104%	112%
4	Qatar Airways ASK	2016/million	13,547	12,665	14,136	14,104
		2017/million	15,821	14,426	16,047	15,583
		2017/2016 %	117%	114%	114%	110%
5	Qatar Airways total revenue	2016/USD	1,562,961,220	1,246,806,719	1,435,771,224	1,401,937,669
		2017/USD	1,650,142,480	1,393,739,174	1,535,117,478	1,564,736,590
		2017/2016 %	106%	112%	107%	112%
6	Qatar Airways YIELD	2016, cent/km	5.69	5.00	4.89	5.05
		2017, cent/km	4.87	4.65	4.80	4.92
		2017/2016 %	86%	93%	98%	97%
7	Qatar Airways RPK	2016/million	10,809	9,535	11,125	10,787
		2017/million	12,716	11,293	12,058	12,236
		2017/2016 %	118%	118%	108%	113%
8	Hamad International Airport (HIA) revenue	2016/USD	825,173,859	647,583,701	754,485,722	742,089,638
		2017/USD	860,604,850	720,292,003	806,062,571	824,800,122
		2017/2016 %	104%	111%	107%	111%
9	Geometric mean	2017/2016 %	108%	109%	106%	109%

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Nr.	Parameter	Year, dimension	May	June	July	August
1	Hamad International Airport (HIA) traffic	2016	3,010,773	2,754,005	3,460,578	3,567,986
		2017	3,186,520	2,350,198	2,973,604	3,095,000
		2017/2016 %	106%	85%	86%	87%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	9,301	8,869	9,615	9,775
		2017	9,833	9,657	9,282	9,373
		2017/2016 %	106%	109%	97%	96%
3	Qatar Airways pass. Movement	2016	2645,685	2,390,306	2,853,652	2,948,802
		2017	2,753,709	2,278,767	2677273	2,778,378
		2017/2016 %	104%	95%	94%	94%
4	Qatar Airways ASK	2016/million	14,802	14,386	15,165	15,082
		2017/million	16,161	16,068	16,747	17,044
		2017/2016 %	109%	112%	110%	113%
5	Qatar Airways total revenue	2016/USD	1,402,748,774	1,339,295,892	1,673,482,090	1,697,301,430
		2017/USD	1,424,335,606	1,235,425,552	1,481,461,265	1,517,514,043
		2017/2016 %	102%	92%	89%	89%
6	Qatar Airways YIELD	2016, cent/km	4.80	4.89	5.31	5.37
		2017, cent/km	4.43	4.21	4.28	4.38
		2017/2016 %	92%	86%	81%	82%
7	Qatar Airways RPK	2016/million	11,125	10,465	12,376	12,444
		2017/million	11,924	11,100	13,157	13,386
		2017/2016 %	107%	106%	106%	108%
8	Hamad International Airport (HIA) revenue	2016/USD	734,294,866	721,842,438	933,018,234	888,654,487
		2017/USD	749,085,864	686,366,345	792,760,231	787,389,214
		2017/2016 %	102%	95%	85%	89%
9	Geometric mean	2017/2016 %	103%	97%	93%	94%

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Nr.	Parameter	Year, dimension	September	October	November	December
1	Hamad International Airport (HIA) traffic	2016	3,296,786	2,991,359	2,969,757	3,356,739
		2017	2,676,204	2,688,037	2,410,400	2,786,958
		2017/2016 %	81%	90%	81%	83%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	9,551	9,772	9,607	10,002
		2017	7,456	7,619	7,356	7,918
		2017/2016 %	78%	78%	77%	79%
3	Qatar Airways pass. Movement	2016	2,719,054	2,612,493	2,611,163	2,816,429
		2017	2,446,138	2,329,486	2,181,825	2,440,380
		2017/2016 %	90%	89%	84%	87%
4	Qatar Airways ASK	2016/million	14,681	15,261	14,908	15,707
		2017/million	16,183	16,391	15,862	16,974
		2017/2016 %	110%	107%	106%	108%
5	Qatar Airways total revenue	2016/USD	1,532,782,279	1,428,792,667	1,364,696,034	1,608,965,729
		2017/USD	1,388,241,087	1,335,523,127	1,234,337,585	1,569,095,422
		2017/2016 %	91%	93%	90%	98%
6	Qatar Airways YIELD	2016, cent/km	5.33	4.74	4.58	4.96
		2017, cent/km	4.43	4.17	4.14	4.84
		2017/2016 %	83%	88%	90%	98%
7	Qatar Airways RPK	2016/million	11,448	11,349	11,136	12,206
		2017/million	12,128	11,817	10,937	12,440
		2017/2016 %	106%	104%	98%	102%
8	Hamad International Airport (HIA) revenue	2016/USD	797,101,531	744,659,882	713,875,318	858,596,273
		2017/USD	690,247,183	688,820,801	647,902,903	831,805,868
		2017/2016 %	87%	93%	91%	97%
9	Geometric mean	2017/2016 %	90%	92%	89%	93%

Table A4

The forecast of Qatar Airways' performance parameters between June–December 2017, with the comparison of data and expectable growth values of the previous year

Nr.	Parameter	Year, dimension	January	February	March	April
1	Hamad International Airport (HIA) traffic	2016	3,100,328	2,732,274	3,064,327	3,016,347
		2017	3,537,462	3,032,308	3,219,919	3,437,312
		2017/2016 %	114%	111%	105%	114%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	8.994	8.441	9.21	9.059
		2017	10.004	8.953	9.873	9.612
		2017/2016 %	111%	106%	107%	106%
3	Qatar Airways passenger movement	2016	2,626,454	2,310,363	2,645,221	2,564,404
		2017	2,949,211	2,590,282	2,762,273	2,864,048
		2017/2016 %	112%	112%	104%	112%
4	Qatar Airways ASK	2016/million	13547	12,665	14,136	14,104
		2017/million	15,821	14,426	16,047	15,583
		2017/2016 %	117%	114%	114%	110%
5	Qatar Airways total revenue	2016	1,562,961,220	1,246,806,719	1,435,771,224	1,401,937,669
		2017	1,650,142,480	1,393,739,174	1,535,117,478	1,564,736,590
		2017/2016 %	106%	112%	107%	112%
6	Qatar Airways YIELD	2016, cent/km	5.68	5	4.89	5.05
		2017, cent/km	4.87	4.65	4.8	4.92
		2017/2016 %	86%	93%	98%	97%
7	Qatar Airways RPK	2016/million	10,809	9,535	11,125	10,787
		2017/million	12,716	11,293	12,058	12,238
		2017/2016 %	118%	118%	108%	113%
8	Hamad International Airport total revenue	2016/USD	825,173,859	647,583,701	754,485,722	742,089,638
		2017/USD	860,604,850	720,292,003	806,062,571	824,800,122
		2017/2016 %	104%	111%	107%	111%
9	Geometric mean	2017/2016 %	108%	109%	106%	109%

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Nr.	Parameter	Year, dimension	May	June	July	August
1	Hamad International Airport (HIA) traffic	2016	3,010,773	2,754,005	3,460,578	3,567,986
		2017	3,186,520	3,027,252	3,803,930	3,921,995
		2017/2016 %	106%	78%	78%	79%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	9.301	8.869	9.615	9.775
		2017	9.833	9.512	10.312	10.483
		2017/2016 %	106%	102%	90%	89%
3	Qatar Airways passenger movement	2016	2,645,685	2,390,306	2,853,652	2,948,802
		2017	2,753,709	2,601,895	3,106,256	3,209,829
		2017/2016 %	104%	88%	86%	87%
4	Qatar Airways ASK	2016/million	14,802	14,386	15,165	15,082
		2017/million	16,161	16,220	17,098	17,004
		2017/2016 %	109%	99%	98%	100%
5	Qatar Airways total revenue	2016	1,402,748,774	1,339,295,892	1,673,482,090	1,697,301,430
		2017	1424,335,606	1,438,626,074	1,797,597,516	1,823,183,441
		2017/2016 %	102%	86%	82%	83%
6	Qatar Airways YIELD	2016, cent/km	4.8	4.89	5.31	5.37
		2017, cent/km	4.43	4.56	4.95	5.01
		2017/2016 %	92%	92%	86%	88%
7	Qatar Airways RPK	2016/million	11,125	10,465	12,376	12,444
		2017/million	11,924	11,817	13,975	14,052
		2017/2016 %	107%	94%	94%	95%
8	Hamad International Airport total revenue	2016/USD	734,294,866	721,842,438	933,018,234	888,654,487
		2017/USD	749,085,864	772,664,308	1,025,590,519	976,825,086
		2017/2016 %	102%	89%	77%	81%
9	Geometric mean	2017/2016 %	103%	91%	86%	87%

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Nr.	Parameter	Year, dimension	September	October	November	December
1	Hamad International Airport (HIA) traffic	2016	3,296,786	2,991,359	2,969,757	3,356,739
		2017	3,623,887	3,288,156	3,264,411	3,689,788
		2017/2016 %	74%	82%	74%	76%
2	Hamad International Airport (HIA) aircraft movement (depart)	2016	9.551	9.772	9.607	10.002
		2017	10.243	10.48	10.303	10.727
		2017/2016 %	73%	73%	71%	74%
3	Qatar Airways passenger movement	2016	2,719,054	2,612,493	2,611,163	2,816,429
		2017	2,959,744	2,843,750	2,842,302	3,065,738
		2017/2016 %	83%	82%	77%	80%
4	Qatar Airways ASK	2016/million	14,681	15,261	14,908	15,707
		2017/million	16,551	17,205	16,808	17,709
		2017/2016 %	98%	95%	94%	96%
5	Qatar Airways total revenue	2016	1,532,782,279	1,428,792,667	1,364,696,034	1,608,965,729
		2017	1,646,462,567	1,534,760,464	1,465,910,042	1,728,296,237
		2017/2016 %	84%	87%	84%	91%
6	Qatar Airways YIELD	2016, cent/km	5.33	4,74	4.58	4.96
		2017, cent/km	4.97	4,42	4.27	4.62
		2017/2016 %	89%	94%	97%	105%
7	Qatar Airways RPK	2016/million	11,448	11,349	11,136	12,206
		2017/million	12,927	12,816	12,575	13,784
		2017/2016 %	94%	92%	87%	90%
8	Hamad International Airport total revenue	2016/USD	797,101,531	744,659,882	713,875,318	858,596,273
		2017/USD	876,188,421	818,543,612	784,704,662	943,784,553
		2017/2016 %	79%	84%	83%	88%
9	Geometric mean	2017/2016 %	84%	86%	83%	87%

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